

Claims

1. A process of dewatering an aqueous suspension comprising dosing the suspension with a flocculating amount of a first flocculant to form a thickened suspension and mixing into the thickened suspension a dewatering amount of a second flocculant and subjecting the thickened suspension to mechanical dewatering to form a cake,
characterised in that the second flocculant comprises a water-soluble or water swellable polymer that is mixed into the suspension in the form of (i) substantially dry polymer particles or (ii) an aqueous composition comprising dissolved or hydrated polymer having a polymer concentration of at least 2% by weight and having a intrinsic viscosity of at least 3 dl/g. .
2. A process according to claim 1 in which the aqueous suspension is sewage sludge.
3. A process according to claim 1 or claim 2 in which the mechanical dewatering employs an apparatus selected from the group consisting of belt press, filter press, screw press and centrifuge.
4. A process according to any of claims 1 to 3 in which the second flocculant is in the form of an aqueous composition comprising dissolved or hydrated polymer having a polymer concentration between 2 and 5% by weight.
5. A process according to any of claims 1 to 4 in which the second flocculant is a cationic polymer.
6. A process according to any of claims 1 to 5 in which the second flocculant is formed from at least 30% by weight cationic monomer or monomers.
7. A process according to any of claims 1 to 6 in which the second flocculant is selected from the group consisting of cationic polyacrylamides, polymers of dialkyl diallyl ammonium chloride, dialkyl amino alkyl (meth) - acrylates (or salts thereof) and dialkyl amino alkyl (meth)-acrylamides (or salts thereof).

8. A process according to any of claims 1 to 7 in which the second flocculant has an intrinsic viscosity of at least 0.5 dl/g, preferably 4 to 10 dl/g.

9. A process according to any of claims 1 to 8 in which the second flocculant is selected from the group consisting of,

5 i) a polymer formed from 50 to 100% by weight methyl chloride quaternary ammonium salt of dimethyl amino ethyl (meth) acrylate and 0 to 50% by weight acrylamide of intrinsic viscosity between 4 and 10 dl/g,

ii) polyvinyl amidine and polyvinyl amines of intrinsic viscosity greater than 1 dl/g,

10 iii) quaternised salts of Mannich addition polyacrylamides of intrinsic viscosity greater than 1 dl/g, and

iv) poly dimethyl diallyl ammonium chloride of intrinsic viscosity greater than 0.5 dl/g.

15 10. A process according to any of claims 1 to 9 in which the first flocculant is a cationic organic polymer.

11. A process according to claim 10 in which the polymer is selected from the group consisting of acrylamide polymers, polyvinyl amidine, polyvinyl amine, poly dimethyl diallyl ammonium chloride, poly amines, polyethyleneimines, mannich polyacrylamides and quaternised mannich polyacrylamides.

20 12. A process according to any of claims 1 to 11 in which the second flocculant is introduced into the suspension in form of a slurry in a liquid.

13. A process according to claim 12 in which the liquid is polyethylene glycol.